AMENDMENTS TO THE CLAIMS

All claims currently pending and under consideration in the present application are shown below. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) One or more computer-storage media having computer-useable instructions embodied thereon for performing a method for identifying optimal mapping of logical links to the physical topology of a network, the method comprising:

obtaining one or more mapping options for mapping multiple logical links between two or more pairs of network nodes onto physical paths that are~~at least relatively~~ maximally disjoint, wherein mapping the multiple logical links onto physical paths that are maximally disjoint comprises:

(a) ascertaining that completely disjoint physical paths between the two or more pairs of network nodes cannot be found within a physical topology of the network;

(b) identifying one or more fiber segments that comprise each of the logical links, wherein each of the one or more fiber segments traverses a pair of network nodes;

(c) assigning a jointness value to each fiber segment of the one or more fiber segments based, in part, on a number of the logical links that share the fiber segment;

(d) combining the jointness values of the fiber segments to find jointness metrics for each of the one or more logical links; and

(e) selecting the logical links associated with low jointness metrics, such that the selected logical links approach existing in parallel;

obtaining a priority order of the network node pairs, wherein obtaining the priority order comprises:

(a) ~~derived from~~ determining a predetermined priority of a connection supported by each of the network node pairs, wherein the predetermined priority is based on ~~which~~ a size of geographic locations that are linked by the connection and volume of flow of traffic that is carried therebetween; and

(b) deriving the priority order of the network node pair supporting the connection based on the size of the geographic locations and the volume of flow of the traffic that is carried on the connection, wherein the network node pair is prioritized high when the geographic locations are major in size and more volume of the traffic is carried on the connection; and

correlating the mapping options with the priority order of the network nodes to identify optimal mapping of logical links to the physical topology of a network.

2. (Previously Presented) The media of claim 1, wherein the method further comprises:

obtaining the availability of wavelengths in the network.

3. (Previously Presented) The media of claim 2, further comprising:

correlating the mapping options with the maximum time delay, and the wavelength availability to identify optimal mapping of logical links to the physical topology of a network.

4.   (Previously Presented) The media of claim 2, wherein the method further comprises:

obtaining the maximum time delay allowed between each network node pair.

5.   (Previously Presented) The media of claim 4, wherein the method further comprises:

obtaining the relative time delay allowed between two or more physical paths.

6.   (Cancelled)

7.   (Previously Presented) The media of claim 1, wherein the correlation is performed using an integer linear program.

8.   (Previously Presented) The media of claim 1, wherein the correlation is performed using a Tabu search methodology.

9.   (Previously Presented) The media of claim 1, wherein the correlation is performed to identify the optimal mapping for a large Internet network backbone.

10.   (Cancelled)

11.   (Currently Amended) A computer system for identifying optimal mapping of logical links onto the physical topology of a network, the system comprising:

a practical constraint module comprising a mapping option sub-module for obtaining mapping options for multiple logical links between two or more pairs of network nodes onto physical paths that are at least relatively disjoint and network node priority sub-module for obtaining a priority order of the network node pairs, wherein obtaining the priority order comprises derived from determining a predetermined priority of a connection supported by each of the network node pairs, wherein the predetermined priority is based on which a size of geographic locations that are linked by the connection and volume flow of traffic that is carried therebetween, and deriving the priority order of the network node pair supporting the connection based on the size of the geographic locations and the volume of flow of the traffic that is carried on the connection, wherein the network node pair is prioritized high when the geographic locations are major in size and more volume of the traffic is carried on the connection; and

a correlation module coupled with the practical constraint module for correlating the mapping options with the network node priority order to identify and store optimal mapping of logical links to the physical topology of a network.

12.   (Original) The computer system of claim 11, wherein the practical constraint module further comprises:

a wavelength submodule for obtaining wavelength availability in a network.

13.   (Original) The computer system of claim 12, wherein the correlation module correlates the mapping options with the network node priority and wavelength availability.

14.   (Currently Amended) A system for identifying optimal mapping of logical links to the physical topology of a network, the system comprising:

means for obtaining one or more mapping options for mapping multiple logical links between two or more pairs of network nodes onto physical paths that are at least relatively disjoint;

means for obtaining a priority order of the network nodes ~~utilizing~~, wherein obtaining the priority order comprises ~~derived from~~ determining a predetermined priority of a connection supported by each of the network nodes, wherein the predetermined priority is based on ~~which~~ a size of geographic locations that are linked by the connection and volume flow of traffic that is carried therebetween, and deriving the priority order of the network node pair supporting the connection based on the size of the geographic locations and the volume of flow of the traffic that is carried on the connection, wherein the network node pair is prioritized high when the geographic locations are major in size and more volume of the traffic is carried on the connection; and

means for correlating the mapping options with the priority order of the network nodes to identify optimal mapping of logical links to the physical topology of a network.

15.   (Original) The system of claim 14, further comprising:

means for obtaining the availability of wavelengths in the network.

16.   (Original) The system of claim 15, further comprising:

means for correlating the mapping options with the maximum time delay, the relative time delay and the wavelength availability to identify optimal mapping of logical links to the physical topology of a network.

17.   (Canceled)

18.   (Canceled)

19.   (Canceled)